

1 --1. (Amended) A method of controlling the intensity of a
2 backlight [included] in a display device [which also
3 includes] having a housing and also having a screen mounted
4 in the housing, the screen having a front side comprising a
5 viewing surface, the screen having a rear side comprising a
6 non-viewing surface, [and] the display device also having a
7 first photo-sensor, and a second photo-sensor, the first
8 photo-sensor being positioned to detect light at the front
9 side, the second photo-sensor being positioned to detect
10 light at the rear side, the method comprising [the steps
11 of]:

12 using said first photo-sensor to detect the intensity
13 of light incident on [a first surface] the viewing surface
14 [of the display device];

15 receiving a brightness setting signal indicative of a
16 user selected brightness level;

17 using the second photo-sensor to detect the intensity
18 of light incident on the non-viewing surface, wherein the
19 light incident on the non-viewing surface comprises ambient
20 light originating from outside the housing and also entering
21 the housing from behind the non-viewing surface;

22 and

23 adjusting the amount of power supplied to [the] a
24 backlight as a function of the detected light intensity
25 incident on the viewing surface, the received brightness
26 setting signal, and the detected light intensity incident on
27 the non-viewing surface.

1 7. (Amended) The method of claim 5 wherein the display
2 screen is a transmissive display panel, [the display device
3 further including a] wherein the second photo-sensor is
4 mounted between the backlight and [a] the rear surface of

5 the display panel [, the method further comprising the step
6 of:

7 using the second photo-sensor to determine the
8 intensity of light incident on the rear surface of the
9 display panel; and

10 wherein the step of adjusting the amount of power
11 supplied to the backlight is also performed as a function of
12 the detected intensity of light incident on the rear surface
13 of the display panel].

1 11. (Amended) The method of claim [10] 5, wherein multiple
2 user selectable brightness settings are supported, one of
3 the brightness settings requiring less power than the other
4 supported brightness settings.

1 13. (Amended) A display device, comprising:

2 a housing;

3 a display panel, mounted in said housing, having a
4 front portion comprising a viewing surface and a rear
5 portion comprising a non-viewing surface;

6 a backlight positioned behind the display panel;

7 a [first] front photo-sensor for determining the
8 intensity of light impinging on [a first portion] the
9 viewing surface of the display panel;

10 a rear photo-sensor for determining the intensity of
11 light impinging on the non-viewing surface of the display
12 panel, the light impinging on the non-viewing surface
13 comprising ambient light originating from outside the
14 housing and said ambient light also entering the housing
15 from behind the non-viewing surface; and

16 a backlight intensity control circuit for controlling
17 the intensity of the backlight as a function of the

determined intensity of light impinging on the [first portion] viewing surface of the display panel and also as a function of the determined intensity of light impinging on the non-viewing surface of the display panel.

23. (Amended) A portable computer device, comprising:

a housing;

a display panel mounted in said housing, having a front portion comprising a viewing surface, and a rear portion comprising a non-viewing surface;

a backlight positioned behind the display panel;

a front photo-sensor for determining the intensity of light impinging on [a] the front portion of the display panel;

a rear photo-sensor, mounted inside said housing behind said display panel, for determining the intensity of light impinging on the rear portion of the display panel, the light impinging on the rear portion of the display panel comprising ambient light entering the housing from outside the housing, said ambient light also entering the housing from behind the non-viewing surface;

a backlight intensity control circuit for controlling the intensity of the backlight as a function of the determined intensity of light impinging on the front portion of the display panel, and as a function of the determined intensity of light impinging on a rear portion of the display panel; and

a base portion, [including] comprising a keyboard and a central processing unit, connected to the display panel. --.

Add the following claims:

1 --26. The display device of claim 13, further comprising:
2 a device for directing the ambient light through said
3 non-viewing surface, the device for directing ambient light
4 being moveably attached to said housing; and
5 a diffuser located behind the display panel, the
6 diffuser being moveably attached to said housing at a
7 different location from the device for directing the ambient
8 light, the diffuser for diffusing at least some of said
9 ambient light before that ambient light passes through said
10 non-viewing surface of the display panel.

1 27. The portable computer device of claim 23, further
2 comprising:
3 a device for directing said ambient light through said
4 non-viewing surface, the device for directing said ambient
5 light being moveably attached to said housing; and
6 a diffuser located behind the display panel, the
7 diffuser being moveably attached to said housing at a
8 location different from said device for directing said
9 ambient light, the diffuser for diffusing at least some of
10 said ambient light before that ambient light passes through
11 said non-viewing surface of the display panel. --.

REMARKS

In view of the following discussion, the Applicants submit that none of the claims now pending in the application is anticipated under the provisions of 35 USC § 102. Thus, the Applicants believe that all of these claims are now in allowable form.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, the Examiner should telephone Ms. Janet M. Skafar, Esq. at (650) 988-0655 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Rejections under 35 USC § 102

The Examiner has rejected each of independent claims 1, 8, 13, 21 and 23, and dependent claims 2-12, 14-20, 22 and 24-25 under 35 USC § 102(b) as being anticipated by the Helms patent (United States Patent 5,760,760 issued June 2, 1998 to Frank P. Helms. In response, Applicants have amended independent claims 1, 13 and 23. Applicants have canceled claims 6, 8-10, 12, 14, 16, 18-19, and 21-22. Applicants have also added new claims 26 and 27. Therefore, Applicants submit that claims 1, 13 and 23, and the claims dependent therefrom, are not anticipated by the Helms patent.

A. Independent claims 1, 13 and 23

Independent claims 1, 13 and 23 have been amended to include additional distinguishing limitations over the Helms patent. This rejection will first be discussed with respect to independent claim 13, an apparatus claim. Furthermore, this rejection is respectfully traversed with respect to independent claims 1, 13 and 23, and the claims dependent therefrom.

In essence, the Examiner states that the Helms patent anticipates the claimed invention in Figures 1 and 2,

and the accompanying abstract which discloses a method and apparatus for automatically adjusting the brightness level of a liquid crystal display device based on the intensity of the light incident (e.g., the ambient light).

Generally speaking, the Helms patent is directed to the same problem as are the present Applicants; namely, a liquid crystal display with a power saving feature. However, as the Examiner will soon see the teachings in the Helms patent, and the claimed invention sharply diverge.

The Helms patent, in the Abstract, discloses a method "and apparatus for automatically adjusting the brightness level of an LCD based on the ambient lighting conditions of the environment in which the LCD is being operated." "In a preferred embodiment, a photodetector located proximate the front of the LCD generates to brightness control circuitry signals indicative of ambient lighting conditions. These signals are correlated to predetermined automatic brightness control values for use in controlling the brightness level of the LCD. Once the ambient light signals have been used automatically to set the brightness level of the LCD, user-selection of a different brightness level, either higher or lower, will override the automatic brightness control setting. In an alternative embodiment, a first photo-detector is located proximate the front of the LCD and a second photodetector is located proximate the back of the LCD. In this embodiment, the brighter ambient condition is used to control the brightness level of the LCD. In another alternative embodiment, the brightness control circuitry comprises some form of artificial intelligence for "learning" a user's

preferred brightness level, or range of brightness levels, in various ambient lighting conditions." (The Helms patent, Abstract).

Significantly, the Helms patent does not teach, as recited in independent claim 13, "a rear photo-sensor for determining the intensity of light impinging on the non-viewing surface of the display panel, the light impinging on the non-viewing surface comprising ambient light originating from outside the housing and said ambient light also originating from behind the non-viewing surface."

Thus, the present invention is not shown, disclosed or suggested, whether explicitly or even implicitly, by the cited art.

Independent claim 13, as amended, contains suitable limitations directed at the distinguishing aspects of the present invention. This claim, with these limitations shown in a bolded typeface, recites as follows:

"A display device, comprising:
 a housing;
 a display panel, mounted in said housing, having a front portion comprising a viewing surface and a rear portion comprising a non-viewing surface;
 a backlight positioned behind the display panel;
 a front photo-sensor for determining the intensity of light impinging on the viewing surface of the display panel;
 a rear photo-sensor for determining the intensity of light impinging on the non-viewing surface of the display panel, the light impinging on the

non-viewing surface comprising ambient light originating from outside the housing and said ambient light also entering the housing from behind the non-viewing surface; and

a backlight intensity control circuit for controlling the intensity of the backlight as a function of the determined intensity of light impinging on the viewing surface of the display panel and also as a function of the determined intensity of light impinging on the non-viewing surface of the display panel." [emphasis added]

Independent claims 1 and 23 contain very similar distinguishing limitations to those recited in claim 13.

As such, the Applicants submit that independent claims 1, 13 and 23 are not anticipated by the teachings in the cited art. Hence, each of these independent claims is patentable under the provisions of 35 USC § 102.

Moreover, each of claims 2-5,7; 15,17,20; and 24-25 depends, either directly or indirectly, from independent claims 1, 13 and 23, respectively, and recites further distinguishing aspects of the present invention. As such, each of these dependent claims is also not anticipated by the teachings in the cited art for the same exact reasons set forth above. Hence, each of these dependent claims is also patentable under the provisions of 35 USC § 102.

B. Dependent claims 26 and 27

New claims 26 and 27 depend from independent claims 13 and 23, respectively. Applicants submit that these dependent claims include additional limitations that

further distinguish the claimed invention from the cited art.

Dependent claim 26 recites limitations directed to a device for directing the ambient light, and a diffuser. The Helms patent includes no such teaching.

Dependent claim 26 contains suitable limitations directed at the distinguishing aspects of the present invention. This claim, with these limitations shown in a bolded typeface, recites as follows:

"The display device of claim 13, further comprising:

a device for directing the ambient light through said non-viewing surface, the device for directing ambient light being moveably attached to said housing;
and

a diffuser located behind the display panel, the diffuser being moveably attached to said housing at a different location from the device for directing the ambient light, the diffuser for diffusing at least some of said ambient light before that ambient light passes through said non-viewing surface of the display panel." [emphasis added]

As such, the Applicants submit that the present invention is not shown, disclosed or suggested, whether explicitly or even implicitly, by the cited art. Hence, dependent claim 26 is patentable under the provisions of 35 USC § 102.